



Monitoring relays - KAPPA series

Monitoring of phase sequence and phase failure

Monitoring of asymmetry

Optional connection of neutral wire

Supply voltage = measuring voltage

2 change over contacts

Plug-in housing

Width 38mm



Read and understand these instructions before installing, operating or maintaining the equipment.



**Danger!**

Never carry out work on live parts! Danger of fatal injury! The product must not be used in case of obvious damage. To be installed by an authorized person.

## Technical data

### 1. Functions

Voltage monitoring in 3-phase mains, monitoring of phase sequence, phase failure and asymmetry with adjustable asymmetry and optional connection of neutral wire.

### 2. Time ranges

Tripping delay: Adjustment range  
fixed, approx. 100ms

### 3. Indicators

Green LED ON: indication of supply voltage  
Yellow LED ON/OFF: indication of relay output

### 4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40  
Mounted on screw terminal socket 11-pols in accordance with IEC 60067-1-18a (type R11x or PF-113BE/M)  
Mounting position: any

### 5. Input circuit

Supply voltage: (= measuring voltage)  
Pins: (S10)-S5-S6-S7 / (N)-L1-L2-L3  
Rated voltage  $U_N$ : see table ordering information or printing on the unit  
Tolerance: -30% to +30% of  $U_N$   
Rated consumption: 9VA (2W)  
Rated frequency: a.c. 48 to 63Hz  
Duty cycle: 100%  
Reset time: 500ms  
Hold-up time: -  
Drop out voltage: >20% of the supply voltage  
Overvoltage category: III (in accordance with IEC 60664-1)  
Rated surge voltage: 4kV

### 6. Output circuit

2 potential free change over contacts  
Rated voltage: 250V a.c.  
Switching capacity: 1250VA (5A / 250V a.c.)  
Fusing: 5A fast acting  
Mechanical life: 20 x 10<sup>5</sup> operations  
Electrical life: 2 x 10<sup>5</sup> operations  
at 1000VA resistive load  
Switching frequency: max. 6/min at 1000VA resistive load  
(in accordance with IEC 60947-5-1)  
Overvoltage category: III (in accordance with IEC 60664-1)  
Rated surge voltage: 4kV

### 7. Measuring circuit

Measuring variable: 3(N)~, Sinus, 48 to 63Hz  
(= supply voltage)  
Measuring input: (S10)-S5-S6-S7 / (N)-L1-L2-L3  
determined by tolerance  
Overload capacity: specified for supply voltage  
Input resistance: -  
Asymmetry: 5% ... 30%  
Overvoltage category: III (in accordance with IEC 60664-1)  
Rated surge voltage: 4kV

### 8. Accuracy

Base accuracy: ±5%  
Adjustment accuracy: ≤5%  
Repetition accuracy: ±2%  
Voltage influence: -  
Temperature influence: ≤0.05% / °C

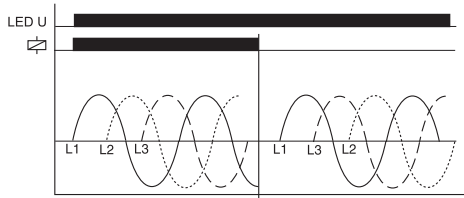
### 9. Ambient conditions

Ambient temperature: -25 to +55°C  
Storage temperature: -25 to +70°C  
Transport temperature: -25 to +70°C  
Relative humidity: 15% to 85%  
(in accordance with IEC 60721-3-3 class 3K3)  
Pollution degree: 2 (in accordance with IEC 60664-1)

## Functions

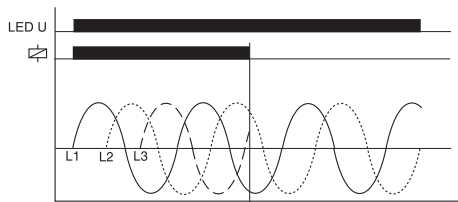
### Phase sequence monitoring

When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay switches into off-position (yellow LED not illuminated).



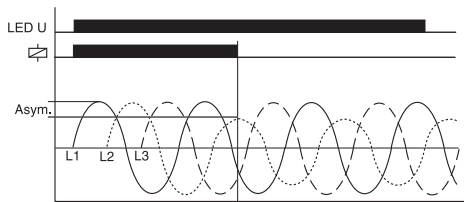
### Phase failure monitoring

The output relay switches into off-position (yellow LED not illuminated), when one of the three phases fails.

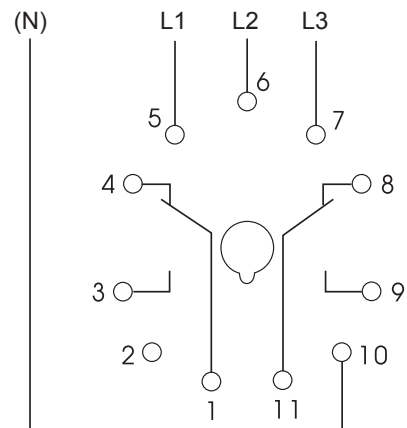


### Asymmetry monitoring

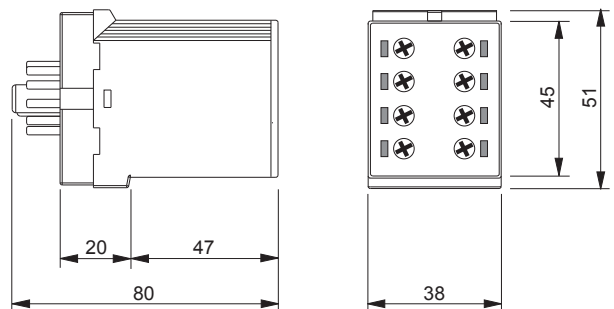
The output relay R switches into off-position (yellow LED not illuminated) when the asymmetry exceeds the value set at the ASYM-regulator. Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.



## Connections



## Dimensions



## Ordering Informations

Types	Rated voltage $U_N$	Switching thresholds $I_s$	Part. No.
K3PF400VSY02	3(N)-400/230V	Asymmetrie: 5% ... 30%	1380301